

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P36226P0-512	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/JP2004/019457	International filing date (day/month/year) 17/12/2004	(Earliest) Priority Date (day/month/year) 24/12/2003
Applicant  MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 4a, b



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP2004/019457

## A. CLASSIFICATION OF SUBJECT MATTER

H01L27/15 H01L33/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/160256 A1 (DUROCHER KEVIN MATTHEW ET AL) 28 August 2003 (2003-08-28)	1, 2, 12
Y	paragraph '0024! - paragraph '0071!;	3-11
A	figures 2-13	13
X	----- PATENT ABSTRACTS OF JAPAN vol. 2003, no. 03, 5 May 2003 (2003-05-05) -& JP 2002 324915 A (NICHIA CHEM IND LTD), 8 November 2002 (2002-11-08)	1, 2, 12
Y	abstract	3-11
A	paragraph '0019! - paragraph '0064!; figures 1, 2	13
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*G\* document member of the same patent family

Date of the actual completion of the international search

5 December 2005

Date of mailing of the international search report

14/12/2005

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 11, 30 September 1999 (1999-09-30) -& JP 11 150303 A (SANYO ELECTRIC CO LTD), 2 June 1999 (1999-06-02) abstract	1,2,12
Y		3-11
A		13
X	----- US 6 373 188 B1 (JOHNSON BURGESS R ET AL) 16 April 2002 (2002-04-16)	13
A	column 3, line 38 - column 6, line 21; figures 1-3	1-12
A	----- PATENT ABSTRACTS OF JAPAN vol. 2000, no. 16, 8 May 2001 (2001-05-08) -& JP 2001 015817 A (MATSUSHITA ELECTRONICS INDUSTRY CORP), 19 January 2001 (2001-01-19) cited in the application abstract	1-13
A	----- US 2002/139987 A1 (COLLINS WILLIAM DAVID ET AL) 3 October 2002 (2002-10-03) paragraph '0017! - paragraph '0031!; figures 3-15	1-13
E	----- WO 2005/022654 A (MATSUSHITA ELECTRIC INDUSTRIAL CO.,LTD; NAGAI, HIDEO) 10 March 2005 (2005-03-10) page 13, line 1 - page 16, line 27; figures 1,2	1-13

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP2004/019457

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2003160256	A1	28-08-2003	US 2003153108 A1	14-08-2003
			US 6614103 B1	02-09-2003
JP 2002324915	A	08-11-2002	NONE	
JP 11150303	A	02-06-1999	JP 3505374 B2	08-03-2004
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			EP 1145332 A1	17-10-2001
			JP 2002533938 T	08-10-2002
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			JP 2002359402 A	13-12-2002
			TW 540169 B	01-07-2003
WO 2005022654	A	10-03-2005	NONE	